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Salix ×*sakamakiensis*, a New Hybrid from Central Japan

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Yoshiyama Hybrid Willow Garden
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Salix ×*sakamakiensis* Yoshiyama, a new hybrid between *S. rupifraga* Koidz. and *S. udensis* Trautv. & C. A. Mey., is described from Nagano Prefecture, central Honshu, Japan.

Key words: Japan, Nagano Prefecture, new hybrid, *Salix* ×*sakamakiensis*.

In June 1996 during the research on *Salix* in Nagano Prefecture, I found a sapling of an unfamiliar willow near Sakamaki Onsen Hot Spa, upstream of the Azusa-gawa River. This is known as an area where *Salix rupifraga* Koidz. is distributed. The young plant grew on the roadside of an old and now unused part of a national highway that ran behind Sakamaki Onsen Inn. It consisted of only young shoots about 1 m long from a remaining stump at the height of 0.5 m, of which the original specimen having been cut down.

It had leaves with which made me presume that one parent was to be *Salix udensis* Trautv. & C. A. Mey. (Ohashi 2001). I sampled some branches and transplanted them in the nursery of Yoshiyama Hybrid Willow Garden, Nishiasakawa-machi, Hachioji, Tokyo. It grew into a shrub with slanting trunks at the height of 2 m and bore male flowers. A comparison of tree shapes, catkins, leaves (Yoshiyama and Ishikawa 1992) and other features revealed a character in between *Salix rupifraga* and *S. udensis* (Table 1).

Salix rupifraga is designated as a vulnerable species (VU) in Japan (Yoshiyama et al. 2000). It is a small shrub and thrives on rocky sites in a few, limited localities of Chubu District, Honshu, Japan. The shrubs on rocky hillside usually grow to 0.1–0.3 m and rarely to 1 m. On the other hand, *S. udensis* is a cosmopolitan species widely distributed in the subarctic zone of the Far East Asia and grows in Shikoku, Honshu and Hokkaido (Kimura 1989). It grows close to water in large clusters, although it is sometimes found in drier areas. Sakamaki Onsen, where I found the plant, is located in the gorges of the Azusa-gawa River of a predominantly rocky landscape.

Through these observations I presumed it to be a hybrid between *Salix rupifraga* Koidz. and *S. udensis* Trautv. & C. A. Mey. It is named *Salix* ×*sakamakiensis* Yoshiyama based on the original locality.

Salix ×***sakamakiensis*** Yoshiyama, hybr. nov. [Figs. 1–3]

Salix rupifraga Koidz. × *S. udensis* Trautv. & C. A. Mey.

Hybrida naturalis inter *Salicem rupifragam* Koidz. et *S. udensem* Trautv. & C. A. Mey., putata, ac fere intermedia. In frutice masculino,

Table 1. Comparison between *Salix rupifraga*, *S. udensis* and *S.* ×*sakamakiensis* in morphological atributes

	S. rupifraga	*S. udensis*	*S.* ×*sakamakiensis*
Habit	small shrub	arborescent	medium-sized shrub
One-year-old brach	grayish brown	yellowish brown	grayish brown
Striations on sapwood	++	–	+
Floral bud	narrowly triangle, apex acute, 4 × 3 mm	narrowly ovate, apex round, 9 × 5 mm	narrowly ovate, apex slightly acute, 9 × 3 mm
Male catkin	conical with cylindrical lower part, 25–45 × 5–7 mm	cylindrical, 30–40 ×10–15 mm	conical with cylindrical lower part, 25–40 × 15 mm
Color of bract in male catkin	light yellow-green	dark brown in upper half, pale green in lower half	pale brown at the tip, pale green in the rest
Leaf blade	narrowly elliptic, apex acute, 30–90 × 20–30 mm	linear, apex acuminate, 100–150 × 10–25 mm	narrowly elliptic, apex acuminate, 100–150 × 23–27 mm
Petiole length	5–8 mm	5–7 mm	5–7 mm
Leaf margin	finely serrate	undulate	undulate
Margin of young leaf	not revolute	revolute	revolute

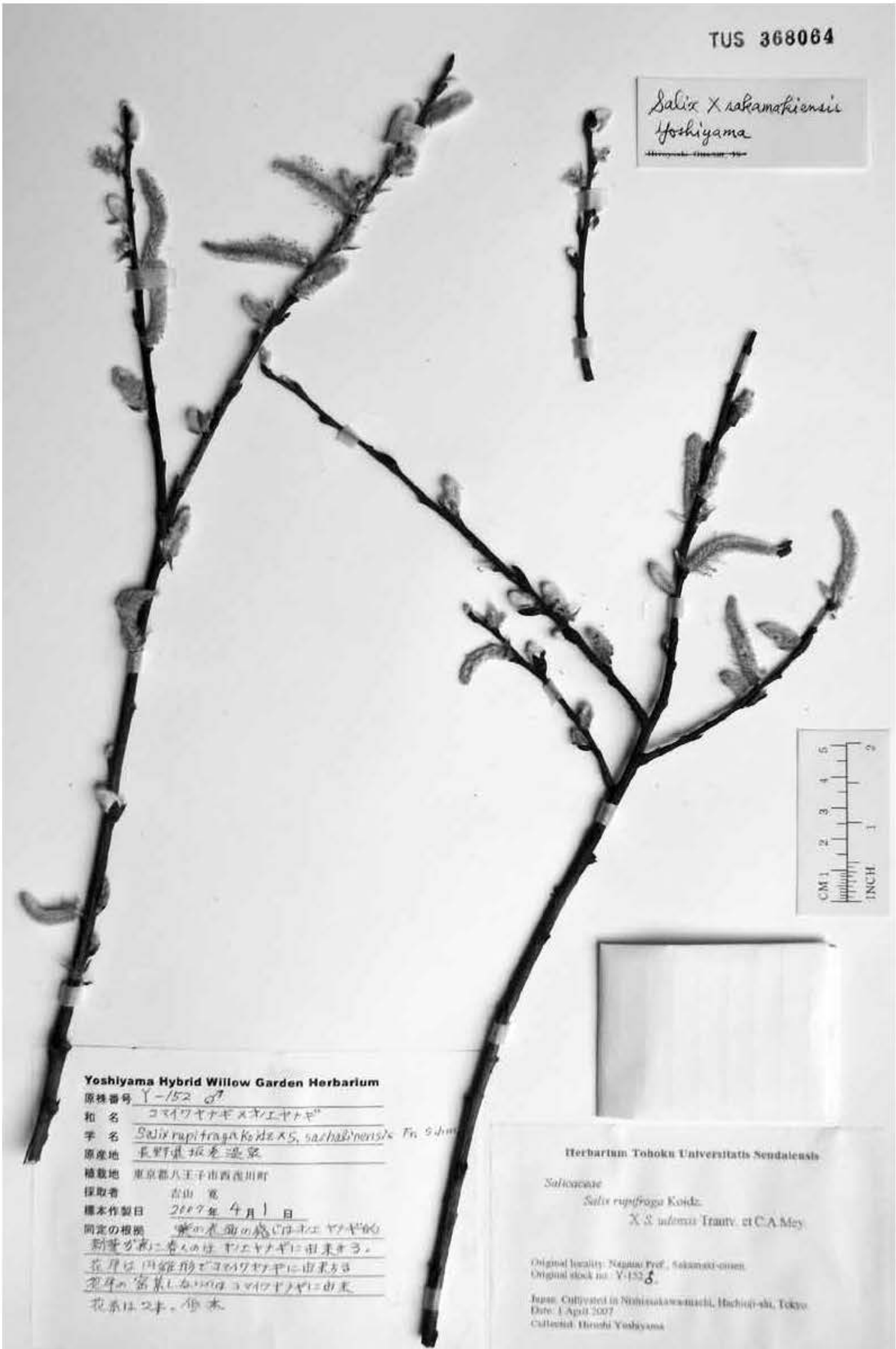
usque ad 2 m alta, alburnis (= lignis succosis) porcatis ut in illis *Salicis rupifragae*, sed foliis multo similibus illorum *Salicis udensis*. Amentis floribus sparsis ornatis conicis ac multo similioribus illorum *Salicis rupifragae*.

Type: JAPAN. Honshu: Nagano Pref., Matsumoto-shi, Sakamaki Onsen Hot Spa, along an upper stream of Azusa-gawa River, 36° 12′N., 137°37′E., alt.1230 m (original locality). Cultivated in Yoshiyama Hybrid Willow Garden, Nishiasakawa-machi, Hachioji, Tokyo, 1 April 2007, Hiroshi Yoshiyama Y-152 ♂ (TUS 368064–holotype; Fig. 1). The same locality, 17 May 2007, Hiroshi Yoshiyama Y-152 ♂ (TUS 368062–paratype; Fig. 2).

A medium-sized shrub 2 m tall, with slanting trunks copiously branched from base. One-year-old branches grayish brown, glabrous. Winter (floral) buds grayish brown, narrowly ovate, 9 mm long, 3 mm wide, glabrous, pale brown at acute tip. Sapwood with elevated, short longitudinal striations. Leaf margin revolute in young; petioles 5–7 mm long; blade narrowly elliptic, acuminate, 100–150 mm long, 23–27 mm wide; base broadly wedged, margin undulate serrate; upper surface dark green, lustrous; lower surface pale grayish green, pubescent; lateral nerves upper surface concave, lower surface prominent, ca.15 pairs. Stipules distinct, obliquely ovate, acuminate, 3–13 mm long. Male catkins precocious, conical, 25–40 mm long, ca.15 mm across, apex acute, lower part cylindrical; flowering branchlet with typically 3 small leaves. Filaments 2, anthers yellow, nectary 1, pale green. Bracts long ovate, with tip pale brown, pilose.

Note: When I revisited the site two years later, the stump and shoots had disappeared, apparently due to road construction. The living stock grows only in the Yoshiyama Hybrid Willow Garden, Nishiasakawa-machi, Hachioji, Tokyo.

The author is grateful to Dr. H. Ohashi, Professor Emeritus, Tohoku University, and Dr. H. Ohba, Professor Emeritus, University of Tokyo, for their invaluable assistance and encouragement.



TUS 368064

Salix × *sakamakiensis*
Yoshiyama

Yoshiyama Hybrid Willow Garden Herbarium
原株番号 Y-152 ♂
和　名 コマイワヤナギ×オノエヤナギ
学　名 Salix rupifraga Koidz. × S. sachalinensis Fr. Schm.
原産地 長野県坂巻温泉
植栽地 東京都八王子市西浅川町
採取者 吉山 寛
標本作製日 2007年 4月 1日
同定の根拠 葉の表面の毛はオノエヤナギ的
側脈が表に著しいのはオノエヤナギに由来する。
花序は円錐形でコマイワヤナギに由来する
苞片の密集しないのはコマイワヤナギに由来
花糸は2本。低木

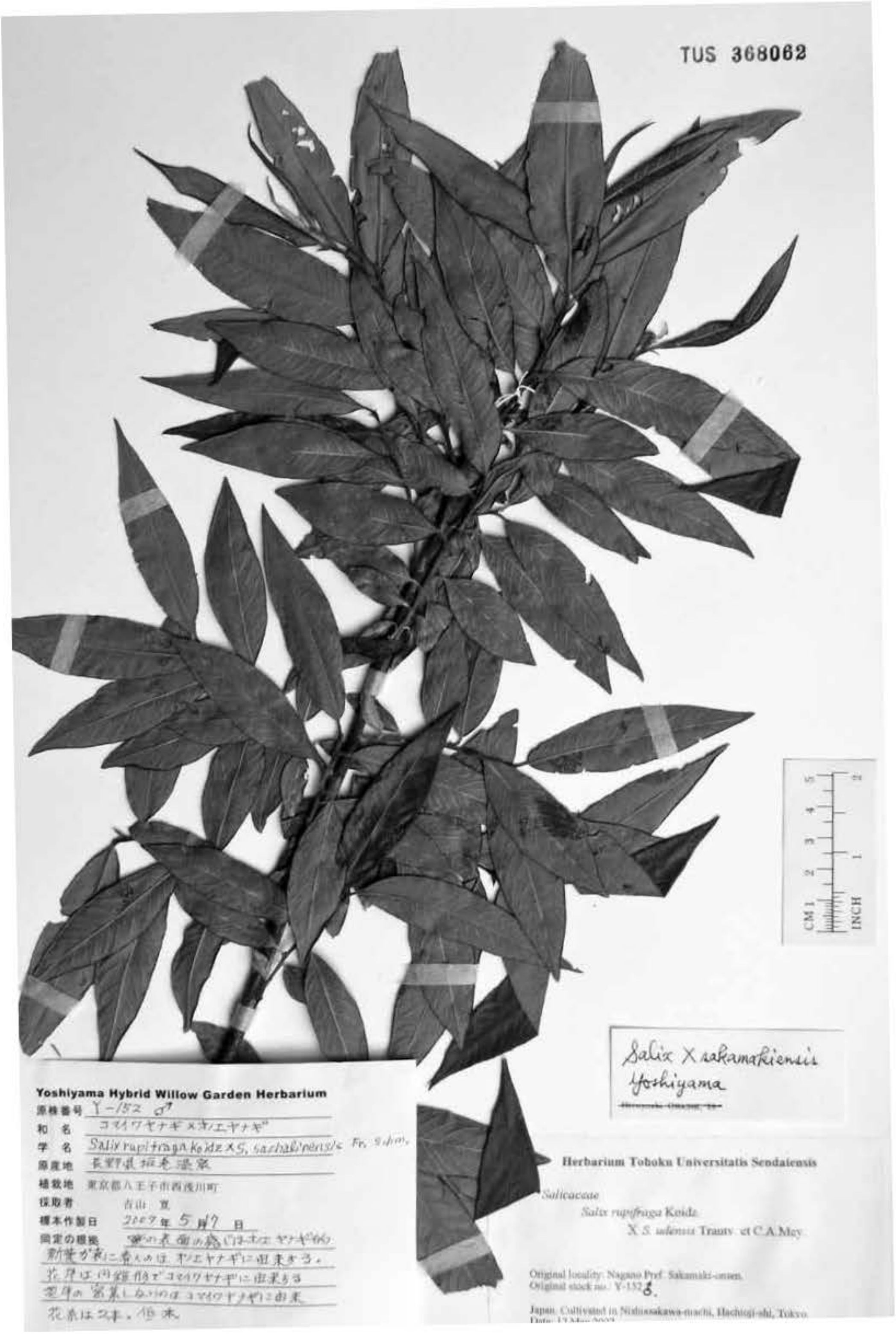
Herbarium Tohoku Universitatis Sendaiensis

Salicaceae
Salix rupifraga Koidz.
× *S. udensis* Trautv. et C.A.Mey.

Original locality: Nagano Pref., Sakamaki-onsen.
Original stock no.: Y-152♂.

Japan: Cultivated in Nishiasakawamachi, Hachioji-shi, Tokyo
Date: 1 April 2007
Collected: Hiroshi Yoshiyama

Fig. 1. Holotype of *Salix* ×*sakamakiensis* (TUS 368064).



Yoshiyama Hybrid Willow Garden Herbarium
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Fig. 2. Paratype of *Salix* ×*sakamakiensis* (TUS 368062).

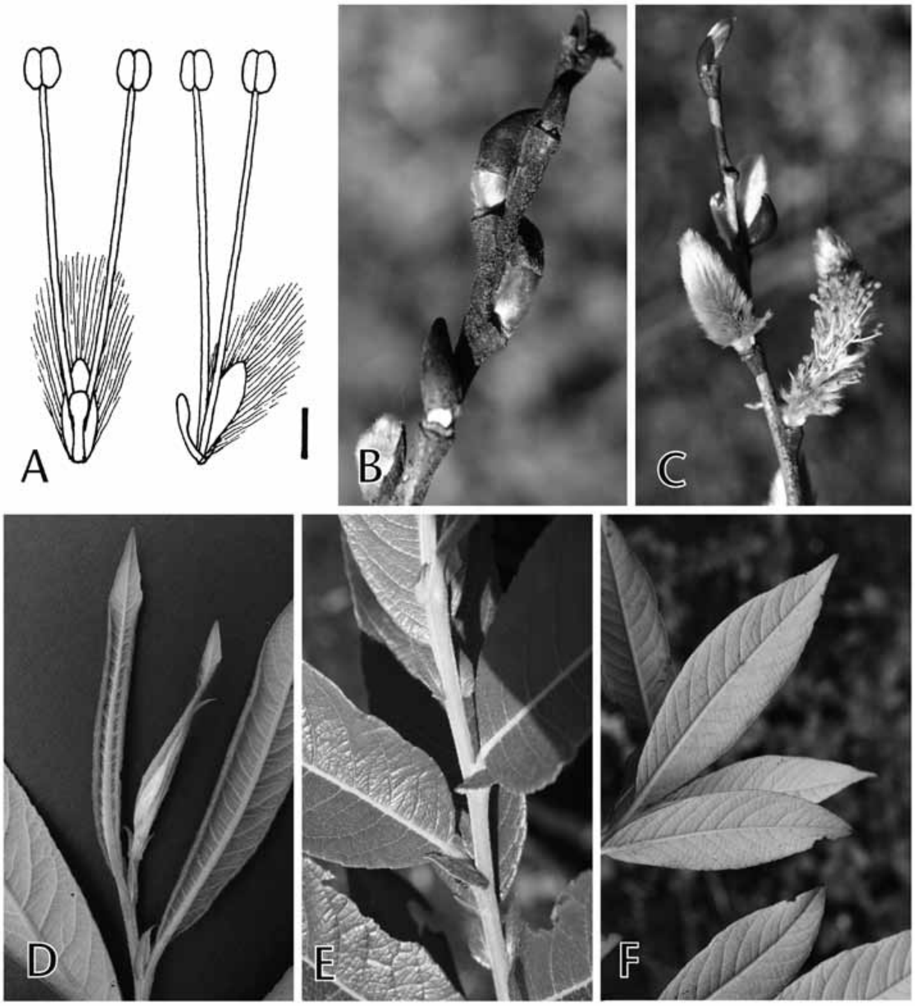

Fig. 3. *Salix* ×*sakamakiensis*. A. Male flower. Left. Front view. Right: Side view. Scale bar = 1 mm. B. Winter bud. C. Male catkin. D. Young leaf with revolute margin. E. Upper surface of leaves and stipule. F. Lower surface of leaves.

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吉山　寛：**長野県で見出されたヤナギの1新雑種**

オノエヤナギとコマイワヤナギとの新雑種を記載した．産地は上高地の入口に位置する長野県松本市の坂巻温泉である．採取時は若苗であったが，八王子市西浅川町で挿木して栽培すると高さ2mほどの中低木となった．葉は一見してオノエヤナギの形質を表し，裸枝の隆起条，花序の形，樹形などはコマイワヤナギに由来すると思われる．この地域はコマイワヤナギを多産することで知られている．和名は原産地名からサカマキヤナギとしたい．再訪したが原株は道路工事で失われており，生存株は当園の株のみになった．

（吉山雑種柳観察園）